

Disease: Smallpox*

***This organism is a certain bioterrorist agent. See “Special Considerations for Bioterrorism” on page 3.**

Clinical Features: Sudden onset of high fever, malaise, prostration, headache, and backache, often with abdominal cramping, vomiting, and delirium, followed by a characteristic skin eruption progressing through stages of macules, papules, vesicles, pustules, and crusted scabs. Skin eruption characteristically began on the head (including the oropharynx) and extremities and progressed to the trunk. The case fatality rate was 20% to 40% in unvaccinated populations.

Organism: Variola virus. Humans were the only known reservoir. The organism is known to be preserved in specific locations in the U.S. and countries once part of the Soviet Union.

Laboratory Test(s): Serum for PCR. KDHEL currently does not test for smallpox.

Treatment: Supportive only.

Incubation Period: From 7 to 19 days. Skin eruption appears 2 to 4 days after first symptoms.

Mode of Transmission: Highly transmissible person-to-person by aerosolized respiratory droplets. Also transmissible by direct contact with respiratory secretions or lesions. Attack rate was as high as 50% in susceptible populations.

Period of Communicability: From pre-eruptive period until separation of scabs - approximately 3 weeks.

Susceptibility: Susceptibility is universal among the unvaccinated. Adults vaccinated as children and military personnel vaccinated in the late 1980's are also considered susceptible. Only individuals who have been recently vaccinated or who have recovered from recent infection should be considered to be resistant.

Occurrence: The last naturally acquired case occurred in Somalia in October of 1977.

Outbreaks: **A single suspect or confirmed case is considered to be an outbreak and is considered to be an international public health emergency. Because the disease has been eradicated, a single case is also considered to be a bioterrorist event until proven otherwise.**

Surveillance Case Definition: Clinical criteria alone are sufficient to classify as a case for purposes of a public health response.

Clinical criteria: Signs and/or symptoms sufficient to cause clinical suspicion on the part of a physician. A suspect case is considered to be a case until determined not to be a case by a clinical assessment conducted by a physician or definitive laboratory testing.

Laboratory criteria: Electron microscopic examination of vesicular or pustular fluid (See “Special Considerations for Bioterrorism” on page 3.)

Disease: Smallpox*

Definition of a contact: (1) Any person who has shared any enclosed air space with a case or suspect case even for five minutes during the communicable period of the case or suspect case; or (2) Any person who had direct contact with respiratory secretions or lesions of a case or suspect case.

Case Investigation: Identification and location of cases, suspect cases and contacts must be accomplished as rapidly as possible for purposes of application of isolation and quarantine measures.

For cases and suspect cases, a thorough history should be taken of all movements and activities from 19 days prior to onset of symptoms until the present. History should focus on gatherings, especially within enclosed spaces.

Methods of Control:

- Vaccination of at-risk populations is advisable during an outbreak.
- Post-exposure prophylaxis for contacts with vaccine and vaccinia immune globulin is recommended.
- Strict isolation of all cases and suspect cases for at least 21 days after onset of first symptoms.
- Strict quarantine of all contacts for 19 days if no symptoms develop. If contacts develop symptoms, they should be isolated as cases.

Isolation Criteria: Activities of a case or suspect case must be controlled in such a way that the individual does not share enclosed air space during the communicable period with any other susceptible individual.

Quarantine Criteria: Activities of a contact must be controlled in such a way that the individual does not share enclosed air space during the maximum incubation period with any other susceptible individual.

Follow-up:

Cases: Cases should be monitored to assure compliance with isolation guidelines until they are no longer infectious.

Contacts: Contacts should be monitored to assure compliance with quarantine guidelines and for onset of symptoms for at least 19 days after the last known contact with an infectious case.

Reporting Requirements: See “Special Considerations for Bioterrorism” below.

1. Report immediately by telephone to the State Epidemiologist at 785-249-8903 or to the Epidemiologic Services Section at 1-877-427-7317.
2. Complete Kansas Notifiable Disease Form or enter into HAWK

Disease: Smallpox*

Reporting Requirements (cont.):

3. FAX form(s) to: 1-877-427-7318, or
4. Mail form(s) to: Epidemiologic Services Section - KDHE
Landon State Office Building, Room 1051S
900 SW Jackson Street
Topeka, KS 66612-1290

For technical assistance questions, call 1-877-427-7317.

***Special Considerations for Bioterrorism:**

Identification and Reporting:

A single confirmed case or a single suspect case is considered to be an outbreak and is considered to be a bioterrorist event until proven otherwise. A suspect case should be responded to in every way as if it were a confirmed case until it is proven not to be. Report immediately by telephone or pager to the State Epidemiologist of the Kansas Department of Health and Environment. The following contact numbers are staffed 24 hours a day, 365 days a year. Contact in order of priority as shown.

1. Kansas State Epidemiologist: 785-249-8903
2. KDHE Epidemiologist On-Call: 1-877-427-7317
3. CDC Bioterrorism response coordinator hotline: 404-639-0385

Likely Bioterrorist Scenarios:

If smallpox virus were to be used for a bioterrorist attack, it would most likely be disseminated in aerosol form. It may be released upon a large number of people at a gathering; however, it would also be effective if released upon smaller numbers of people in a single or multiple locations. Such an attack may or may not be announced by the perpetrator(s). It is very possible that public health and law enforcement authorities would only learn about such an attack upon diagnosis of the first case.

Safety Considerations for Public Health and Other Health Care Professionals:

From the moment that smallpox is suspected in a patient, all health care professionals involved in the care of the patient should observe strict respiratory and contact isolation precautions. The patient should be immediately sequestered into strict respiratory and contact isolation.

All health care employees exposed to the patient prior to recognition of the situation should receive vaccine and vaccinia IG as soon as possible and should be treated as contacts. Subsequently, all health care workers should be vaccinated prior to caring for any cases or suspect cases.

Disease: Smallpox*

Safety Considerations for Public Health and Other Health Care Professionals (cont.):

Laboratory specimens of suspect cases should be collected only by vaccinated individuals who wear gloves and masks. Specimens should be forwarded to a Bio-safety Level 4 rated laboratory. The Kansas Health and Environmental Laboratory is not Bio-safety Level 4 rated.

Event Response/Control Measures:

Whether a bioterrorist event is announced or unannounced, local public health officials should play a central role in the event response and in the determination of appropriate control measures.

Definition of the population-at-risk:

This will be crucial task in such a situation, and will be essential to guide response activities. Public health authorities will play the lead role in this effort, but will consult with law enforcement, emergency response and other professionals in the process. Due to the infectiousness of smallpox, the definition of the population-at-risk will have to be re-evaluated and redefined frequently as the investigation of, assessment of, and response to a bioterrorist event moves forward.

The population-at-risk will likely expand rapidly as new primary cases are identified and their contacts are subsequently identified and evaluated for application of control measures below.

Control measures which should be addressed are:

Decontamination: Not necessary in the case of smallpox.

Post-exposure prophylaxis: Recommended for all contacts.

Isolation: Mandatory for cases for 19 days.

Quarantine: Mandatory for contacts for 21 days, regardless of receipt of PEP.

Other public health activities:

Line lists: A central responsibility of the LHD staff is to maintain detailed line lists of cases, suspect cases, and contacts with accurate identifying and locating information as well as appropriate epidemiological information. These lists will be essential for effective enforcement of isolation and quarantine measures, and for early identification of infection among contacts.

Pharmaceuticals:

In the event of a smallpox outbreak, smallpox (vaccinia virus) vaccine and human vaccinia immune globulin will be procured from the CDC National Pharmaceutical Stockpile Program. Procurement, storage, and distribution will be coordinated through the Kansas Department of Health and Environment.

Disease: Smallpox*

Pharmaceuticals (cont.):

Use of pharmaceuticals: Local and state public health officials must play a central role in determining which public health workers, health care workers, law-enforcement workers, emergency workers, and other essential personnel should have priority in receipt of limited pharmaceuticals (vaccines and immune globulin).